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IS 15437 (2003): Aerospace - Screws, 100° Normal Countersunk Head, Internal Offset Cruciform Ribbed Drive, Normal Shank, Short or Medium Length MJ Threads, Metallic Material, Coated or Uncoated, Strength Classes Less than or Equal to 1 100 Mpa - Dimensions [TED 14: Aircraft and Space Vehicles]

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IS 15437 : 2003
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Indian Standard

AEROSPACE — SCREWS, 100° NORMAL COUNTERSUNK HEAD, INTERNAL OFFSET CRUCIFORM RIBBED DRIVE, NORMAL SHANK, SHORT OR MEDIUM LENGTH MJ THREADS, METALLIC MATERIAL, COATED OR UNCOATED, STRENGTH CLASSES LESS THAN OR EQUAL TO 1 100 MPa — DIMENSIONS

ICS 49.030.20

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 2003 **Price Group 2**

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 5856 : 1991 'Aerospace — Screws, 100° normal countersunk head, internal offset cruciform ribbed drive, normal shank, short or medium length MJ threads, metallic material, coated or uncoated, strength classes less than or equal to 1 100 MPa — Dimensions' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Aircraft, Space Vehicles, Air Cargo Handling and Aircraft Electrical Equipment Sectional Committee and approval of the Transport Engineering Division Council.

The text of the International Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard reference appears to International Standards listed below for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their place, are given below along with their degree of equivalence for the editions indicated. However, that International Standard cross referred in this adopted ISO Standard, which has subsequently been revised, position in respect of latest ISO Standard has been given:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 286-2 : 1988 ISO system of limits and fits — Part 2 : Tables of standard tolerance grades and limit deviations for holes and shafts	IS 919 (Part 2) : 1993 ISO system of limits and fits: Part 2 Table of standard tolerance grades and limit deviations for holes and shafts (*first revision*)	Technically equivalent
ISO 3353-1 : 2002 Aerospace lead and runout threads — Rolled external threads	—	—
ISO 5855-2 : 1999 Aerospace — MJ threads — Part 2 : Limit dimensions for bolts and nuts	IS 10980 (Part 2) : 1984 Specification for aerospace bolts and nuts (MJ threads): Part 2 Dimensions for bolts and nuts	Technically equivalent
ISO 7994 : 1985 Aerospace — Internal drive, offset cruciform recess (Torq-Set®) for rotary fastening devices — Metric series	—	—

The Technical Committee responsible for the preparation of this standard will review the provisions of the IS 3353-1 and ISO 7994 and decided that they are acceptable for use in conjunction with this standard.

For BIS Certification Marking, details are available with the Bureau of Indian Standards.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

AEROSPACE — SCREWS, 100° NORMAL COUNTERSUNK HEAD, INTERNAL OFFSET CRUCIFORM RIBBED DRIVE, NORMAL SHANK, SHORT OR MEDIUM LENGTH MJ THREADS, METALLIC MATERIAL, COATED OR UNCOATED, STRENGTH CLASSES LESS THAN OR EQUAL TO 1 100 MPa — DIMENSIONS

1 Scope

This International Standard specifies the dimensions of 100° normal countersunk head screws with internal offset cruciform ribbed drive, close or large tolerance normal shank and short or medium length MJ threads, in metallic material, coated or uncoated, with strength classes less than or equal to 1100 MPa.

It is intended for the drawing up of aerospace product standards.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 286-2:1988, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts.*

ISO 3353:1976, *Aerospace construction — Rolled threads — Runout and lead threads.*

ISO 5855-2:1988, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts.*

ISO 7994:1985, *Aerospace — Internal drive, offset cruciform recess (Torq-Set®) for rotary fastening devices — Metric series.*

3 Configuration and dimensions

See figure 1 and table 1. Dimensions and tolerances are expressed in millimetres. They are applicable after any surface coating, but before the application of any lubricant.

Details of form not stated are left to the manufacturer's discretion.

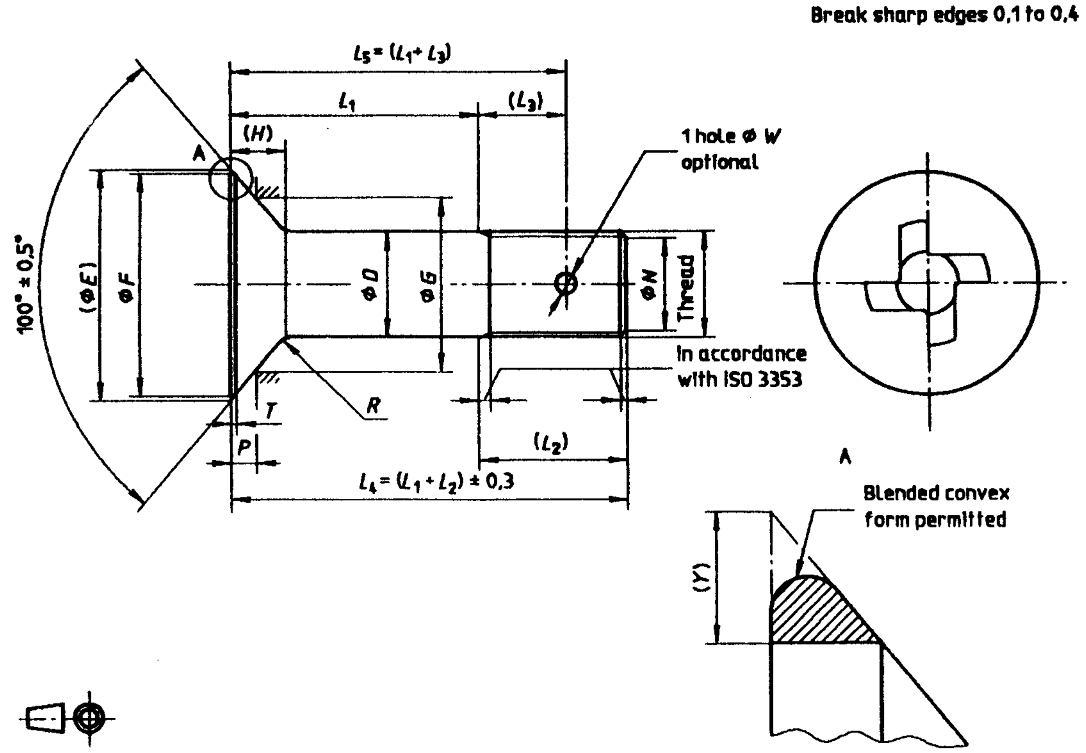
Break sharp edges 0,1 to 0,4
$L_5 = (L_1 + L_3)$
L_1
(L_3)
(H)
A
1 hole ⌀ W optional
100° ± 0,5°
(⌀E)
⌀F
⌀D
⌀G
⌀N
Thread
In accordance with ISO 3353
T
R
P
(L_2)
$L_4 = (L_1 + L_2) \pm 0{,}3$
A
Blended convex form permitted
(Y)

Figure 1

Table 1

Diameter code	Thread1) 2)	D nom.	D Coated screws Tol. close	D Coated screws Tol. large	D Uncoated screws Tol. close	D Uncoated screws Tol. large	E max.	F min.	G	H	L_1 3) ± 0,2
030	MJ3×0,5 – 4h6h	3	−0,007 −0,032	h12 4)	f7 4)	h12 4)	6	5,4	4,5	1,27	3 to 30
040	MJ4×0,7 – 4h6h	4	−0,010 −0,035				8	7,2	5,78	1,69	3 to 40
050	MJ5×0,8 – 4h6h	5					10	9	7,71	2,12	4 to 50
060	MJ6×1 – 4h6h	6					12	10,8	9	2,54	5 to 60
070	MJ7×1 – 4h6h	7	−0,013 −0,038				14	12,8	10,28	2,96	6 to 70
080	MJ8×1 – 4h6h	8					16	14,8	12,21	3,39	6 to 80
100	MJ10×1,25 – 4h6h	10					20	18,8	15,43	4,23	8 to 100
120	MJ12×1,25 – 4h6h	12	−0,016 −0,041				24	22,8	18	5,08	10 to 120
140	MJ14×1,5 – 4h6h	14					28	26,8	20,57	5,93	10 to 140
160	MJ16×1,5 – 4h6h	16					32	30,8	24,43	6,77	10 to 160
180	MJ18×1,5 – 4h6h	18					36	34,8	25,71	7,62	11 to 180
200	MJ20×1,5 – 4h6h	20	−0,020 −0,045				40	38,8	28,92	8,47	12 to 200

Diameter code	L_2		L_3		N		P	R		T	W	Y	Internal drive size5)
	Thread short	Thread medium	Thread short	Thread medium	nom.	tol.	$^{0}_{-0,08}$	max.	min.	min.	H13 4)		
030	6	7,5	—	—	2,3	0 −0,5	0,63	0,4	0,2	0,06	—	0,3	R3
040	7,5	10	5	6	3		0,93			0,08	1,1	0,4	R4
050	9	12	6	7,5	3,4	± 0,5	0,96	0,5	0,3	0,1	1,5	0,5	R5
060	10	14	7	8,5	4,2		1,26	0,7	0,5			0,6	R6
070	11	15		9,5	5,2		1,57				1,9		
080	11,5	16,5	7,5	10,5	6,2		1,6						R8
100	14,5	20,5	9	13	7,9		1,93	0,8	0,6		2,4		R10
120	16	22,5	10	14,5	9,8		2,53	0,9					R12
140	19	26	12	17	11,5		3,14	1,1	0,8		3		R14
160	20,5	28,5	13	18,5	13,5		3,2						R16
180	22,5	31	14,5	21	15,5		4,35	1,3	1,0		3,8		R18
200	24,5	33,5	15	22,5	17,5		4,68						

1) In accordance with ISO 5855-2.

2) For coated or uncoated screws with a close tolerance on D, the thread major diameter d shall be:

d max. = D min. − 0,025

3) Increments:

1 if $L_1 \leqslant 30$
2 if $30 < L_1 \leqslant 100$
4 if $L_1 > 100$

If greater lengths are required, they shall be chosen using these increments.

4) In accordance with ISO 286-2.

5) In accordance with ISO 7994.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 3375, 2323 9402

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices :	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	2323 7617 2323 3841
Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700 054	2337 8499, 2337 8561 2337 8626, 2337 9120
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022	60 3843 60 9285
Southern : C. I. T. Campus, IV Cross Road, CHENNAI 600 113	2254 1216, 2254 1442 2254 2519, 2254 2315
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